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EXAMINER	
JONES, HUGH M	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/276,883	Applicant(s) CLAVADETSCHER, CHARLES
	Examiner Hugh Jones	Art Unit 2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *11 March 2004*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-96* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on 3/11/04 is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *9-10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Introduction

1. **Claims 1-96 of U. S. Application 09/276,883 filed on 26-March-1999, are presented for examination.**

Response to Amendment

2. The amendment filed 1/24/2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the amendment to the specification and to figure 6A. Applicant is required to cancel the new matter in the reply to this Office Action or to indicate support in the originally filed specification.

Information Disclosure Statement

3. **Applicants have sumitted a number of docments in paper # 10.** The IDS statement indicates that complete documents were to be reviewed by the examiner. However, only a few pages of each document were actually submitted (see the initialized IDS, submitted with this Official office Action). Furthermore, the Examiner requires the complete documents because they are material to the examination of the claimed invention. Please provide a complete copy of each of the items of art referred to in the Information Disclosure Statement (paper # 10). Applicants are reminded of their duty to disclose as per the provisions of 1.56 and 1.105.

Claim Rejections - 35 USC § 112

4 The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-96 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims refer to some unspecified "camera model"; however there is no support for such a model in the specification. Instead, there appears to be a general description of what the model could possibly be capable of. Furthermore, most of the "model" is directed at lenses models and not camera models. The only recited feature which is remotely related to the camera itself is the "aspect ratio" which is merely a measure of the image size at the focal plane. Furthermore, there is no teaching of a *digital camera, as apparently recited in claims 51-96.*

6. Claims 1-96 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims refer to some unspecified "camera model"; however there is no support for such

a model in the specification or any indication that Applicants possessed such a model. Instead, there appears to be a general description of what the model could possibly be capable of. Furthermore, most of the "model" is directed at lenses models and not camera models. The only recited feature which is remotely related to the camera itself is the "aspect ratio" which is merely a measure of the image size at the focal plane. Furthermore, there is no teaching of a *digital camera, as apparently recited in claims 51-96.*

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-50, 65-96 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: unknown but are related to a camera model.

9. Claims 51-59 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: unknown but are related to a camera model.

Claim Interpretation

10. The claims appear to recite simulation/modeling of lens and further obtaining simulated images from such lens, using well known photographic parameters such as

circle of confusion, aspect ratio, depth of field, hyperfocal distance, etc.. Some of the claims, namely the apparatus and medium claims (such as claims 51-96) appear to be directed to a camera with an on-board processor, such as a digital camera, which is loaded with firmware, such as SONY™ Cybershot digital cameras.

11. The claims are difficult to interpret in view of the lack of teaching of the "camera model" and its implementation. Consequently, the Examiner will assume that the camera models, as taught in the art, are that which is implied by the claims. Furthermore, it is assumed that claims 51-96, for example, read on a camera with an on-board processor, such as a digital camera, which is loaded with firmware, such as SONY™ Cybershot digital cameras.

12. It is noted that many claims recite features which do not correspond to the respective preambles. For example, consider claim 1. There are no limitations directed at a model. The claim merely recites ***setting a camera and lens parameter after setting a different camera and lens parameter***. It is unknown how this constitutes a "model". In fact, this claim reads on using a camera in "manual setting", for example, where the film ASA is set, then the aperture is set, and then the shutter speed is set. On course this can be done automatically in a digital camera in "program setting". Consider claim 19 for which the preamble recites "...simulating a digital camera...". There is no teaching in the specification of a digital (oe even analog) camera. In any case, the limitations are not directed at a digital camera. Consider claim 35, for example, which recite "markers". This reads on the LCD readout in cameras (corresponding to focus, ASA, aperture, etc.). There is nothing recited in the limitations corresponding to a

simulation. Consider claim 45, for example. ***The limitations merely read on use of an actual camera.*** Consider claim 43, for example. ***The limitations are merely directed at imaging a calibration chart*** with a lens using, for example, the standard Macbeth chart. There is no simulation or even calibration recited in the claim. Such recitations have not been given patentable weight because the recitation occurs in the preamble. ***A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone.*** See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Furthermore, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

13. The Examiner therfore interprets, as per the preceding discussion, that claims 1-34 are directed to a lens simulation or modeling, claims 35-42 and 51-96 are directed to a real camera with an on-board processor and a viewfinder, claims 43-47 are directed to calibration of lenses and claims 48-50 are directed to lenses calibration wherein before and after images are determined.

14. It is noted that the specification makes certain admission (specifcally, line 27, page 11 to line 3, page 12) about what is not expressly disclosed in the specification. The Examiner does not agree that a skilled artisan would know how to supply the missing details.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

16. A person shall be entitled to a patent unless -

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

17. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

18. Claims 1-96 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Subbarao or Wheeler et al. ('204).

Subbarao discloses a camera simulation system and further discloses a method of determining the distance between a surface patch of a 3-D spatial scene and a camera system. The distance of the surface patch is determined on the basis of at least

a pair of images, each image formed using a camera system with either a finite or infinitesimal change in the value of at least one camera parameter. A first and second image of the 3-D scene are formed using the camera system which is characterized by a first and second set of camera parameters, and a point spread function, respectively, where the first and second set of camera parameters have at least one dissimilar camera parameter value. A first and second subimage is selected from the first and second images so formed, where the subimages correspond to the surface patch of the 3-D scene, the distance from which to the camera system, is to be determined. On the basis of the first and second subimages, a first constraint is derived between the spread parameters of the point spread function which corresponds to the first and second subimages. On the basis of the values of the camera parameters, a second constraint is derived between the spread parameters of the point spread function which corresponds to the first and second subimages. Using the first and second constrainsts, the spread parameters are then determined. On the basis of at least one of the spread parameters and the first and second sets of camera parameters, the distance between the camera system and the surface patch in the 3-D scene is determined. Note fig. 1-7A and corresponding text.

Wheeler et al. disclose an exposure control apparatus, and various accompanying methods, for use in a photographic camera for improving the overall quality of photographed images, i.e. increasing the number of acceptable and higher quality images, that are produced by the camera for user-selected non-standard display sizes and/or different focal length photographing modes over that obtainable by

adherence to ISO/ANSI exposure standards. The quality improvement is attained through user selection of a desired display size and/or focal length photographing mode for each image to be captured followed by an optimization, for that size and mode, of various photographic exposure parameters (exposure settings and, where appropriate, flash parameters). The invention violates the ISO/ANSI exposure standards where necessary to improve image quality, for the desired display size and focal length photographing mode, beyond that which would result from adherence to these standards. See fig. 2-14.

19. Claims 1-34 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Potmesil et al.

Potmesil et al. disclose the traditional pin-hole camera projection geometry, used in computer graphics, to a ***more realistic camera model*** *which approximates the effects of a lens and an aperture function of an actual camera. This model allows the generation of synthetic images which have a depth of field, can be focused on an arbitrary plane, and also permits selective modeling of certain optical characteristics of a lens.* The model can be expanded to include motion blur and special effect filters. These capabilities provide additional tools for highlighting important areas of a scene and for portraying certain physical characteristics of an object in an image. See section 2 (camera model) and section 3 (synthetic image generation).

20. Claims 1-34 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Rioux or Kolb et al. ('606).

Rioux discloses simulating a photographic camera for rendering two-dimensional images of virtual three-dimensional objects enhances flexibility and ease of use of a rendering system. Simulating a photographic camera is performed by determining light from virtual light sources that passes through a lens of the simulated photographic camera having an aperture, focus, and shutter speed and is incident upon the imaging plane within the camera. The method also has application in teaching photography because, in some instances, computer simulation reduces the cost of equipment and consumables. See fig. 2-5 and corresponding text.

Kolb et al. ('606) disclose a physical camera which is modeled to render an image in a computer graphics system. When given the manufacturer's specifications of the physical camera's lenses, including the dimensions and indices of refraction of its lenses, stops, and shutter characteristics, the location of the film surface relative to the lens system, and the orientation of the camera within the scene, the invention accurately and efficiently mimics the physical principles of image formation creating an image which approximates an image produced by the physical camera. The procedure comprises four main elements: (1) the geometric relationships between the lens system, object, and film plane are modeled by precise placement and movement of lens elements, (2) image geometry is computed by using principles of geometric optics, (3) an exit pupil is calculated in order to define a region for efficiently sampling rays, (4) the image irradiance, or exposure at a pixel, is computed according to radiometric principles. See fig. 1, 7 and corresponding text.

21. Claims 35-42, 51-96 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wheeler ('348).

Wheeler discloses a camera system which incorporates an autofocus system of simple and inexpensive design that provides improved photospace coverage. The autofocus system utilizes both a measurement of the intensity level of ambient light and a determination of whether the ambient light is natural or artificial to set lens focus position, aperture opening, shutter time and operation of a flash unit. See fig. 1-4.

22. Claims 35-42, 51-96 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Doron.

Doron disclose a camera which powers up in a default fixed-focus mode and has a capability whereby the photographer can select an auto-focus mode. The camera includes a lens, a shutter and a motor for moving the lens and for opening the shutter. A CCD, electrically interconnected to an analog to digital signal converter, receives image data and transforms the data to analogs for transmission to the converter where a digital output signals is generated. The digital signal is electrically transmitted to a *processor* which is electrically connected to the motor. In the camera default fixed focus mode, a first control algorithm facilitates a process wherein the processor generates an electrical signal to cause the motor to move the lens directly to a control position. To elect the ***auto-focus mode*** of camera operation, the photographer depresses a button and thereby selects a process which functions in accordance with the steps of a second control algorithm wherein the processor generates an electrical signal to cause the motor to move the lens past a focal point, and a second signal to cause the lens to

backstep to the focal point. When the auto mode is selected, an icon appears on a data liquid crystal display (LCD) to indicate that auto focus mode is selected. See figures 3-7.

23. Claims 43-47 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Humphrey or Iwane.

Humphrey discloses a process and apparatus for the calibration of an optical instrument. An optical instrument--such as a lens meter or ophthalmometer--is provided with a light source, a light detector, and an optical train of assembled optical elements therebetween. A suspect optical element to be measured is placed within the optical train at a measuring interval to deflect light passing along the optical train. An occulting moving boundary locus having at least two boundaries of differing shape, and a dedicated computer may be used to measure beam deflection. The dedicated computer also makes use of stored computer constants to transform raw measurements into the desired optical properties of the suspect optical element. The optical train of the instrument has its assembled optical elements randomly placed to production tolerances; precision registration of the optical elements to traditional close optical tolerances is omitted. Calibration occurs by manipulating the instrument's beam deflection apparatus under the control of a calibration program, by providing the optical instrument being calibrated with an umbilical cord which bypasses the central processing unit of the dedicated computer, but otherwise manipulates the entire optical instrument's beam deflection apparatus. This umbilical cord leads from a calibration computer, which substitutes central processing and contained memory as well as providing a supplemental program for the generation of customized computer constants.

Customized computer constants are generated for each instrument by insertion of a series of test elements of known quantity into the samping interval of that instrument, and burned into a memory which is then placed into the dedicated computer of the instrument being calibrated. See col. 6, line 38 to col. 9, line 42.

Iwane discloses an automatic lensmeter for automatically measuring a lens characteristic of a lens to be tested, comprises: a measuring unit including an optical system for detecting a refraction characteristic of the lens; a calculation unit for calculating a lens characteristic value in accordance with information from the measurement unit; a display unit for displaying the lens characteristic value calculated by the calculation unit; an actual eccentricity calculation unit for calculating an actual eccentricity based on the lens characteristic value calculated by the calculation unit; and an optical axis position determination unit for determining whether the actual eccentricity calculated by the actual eccentricity calculation unit is within a predetermined range or not to determine whether the measurement and/or the marking are permitted. The display unit displays the determination of the optical axis position determination unit. See fig. 1-3, 12-13 and corresponding text.

24. Claims 48-50 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Aloni et al.. or Rushmeier et al.

Aloni et al. disclose an inspection method including the steps of providing a patterned object to be inspected and compared with a reference, inspecting the patterned object and providing an output of information relating to the visual characteristics of the patterned object, and providing an output indication of differences

between the patterned object and the reference, the step of providing including the steps of sensing hill profiles and valley profiles in information relating to the visual characteristics of the patterned object, sensing hill profiles and valley profiles in information relating to the visual characteristics of the reference and providing a defect indication when a hill profile or a valley profile of at least a sufficient level is sensed for a given location in the patterned object and not for a corresponding location in the reference. See fig. 1-5, 14.

Rushmeier et al. disclose comparison of real and synthetic images for use in calibration. See section 1.

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

27. Claims 1-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over "The Rende3rMan Interface Specification" (Applicant's IDS – "R") in view of Modla (Applicant's IDS – "M") or Hsieh et al. (Applicant's IDS – "H").

28. R discloses graphical display of computer simulation of camera images including markers (chapter 4).

29. R does not expressly teach readjusting camera parameters.

30. M discloses camera simulation including altering one camera parameter in response to another (col. 2, lines 21-44).

31. H discloses simulation of an autofocus camera (see fig. 3-4).

32. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the R teachings with the M or H teachings because a realistic simulation of an autofocus camera systems requires that other camera parameters must be selected in response to a first selection of a camera parameter.

Response to Arguments **(paper # 12)**

33. Applicant's arguments filed 3/11/2004 have been fully considered but they are not persuasive.

Response to Arguments – Response to Amendment **(pg. 18, paper # 12)**

34. Applicant's arguments filed 3/11/2004 have been fully considered but they are not persuasive.

35. Applicants are thanked for their response as per item "a".

36. Applicant's arguments as per item "b" are not persuasive, as discussed elsewhere in this Official action.

***Response to Arguments – Claim Objections* (pg. 18, paper # 12)**

37. Applicant's arguments filed 3/11/2004 have been fully considered and they are persuasive. Applicants are thanked for correcting the claim numbering.

***Response to Arguments – Specification* (pg. 21; paper #12)**

38. Applicant's arguments filed 3/11/2004 have been fully considered and they are persuasive. Applicants are thanked for correcting the title.

***Response to Arguments – New Matter* (pp. 19-20, paper # 12)**

39. Applicant's arguments filed 3/11/2004 have been fully considered but they are not persuasive.

40. Applicants rely on In re Oda. However, one of Applicant's arguments is that the addition of FL to TFL would be obvious. However, obviousness was not at issue in In re Oda; instead In re Oda addressed the issue of errors.

41. The amendment filed 1/24/2002 was objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the amendment to the specification and to figure 6A. Applicant is required to cancel the new matter in the reply

to this Office Action or to indicate support in the originally filed specification. Applicants have instead alleged that the missing disclosure was well known.

42. See MPEP 2145 (Consideration of Applicant's Rebuttal Arguments - ARGUMENT DOES NOT REPLACE EVIDENCE WHERE EVIDENCE IS NECESSARY), which recites

"Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of admissions as prior art. The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration."

43. Applicants have only alleged that certain teachings, missing from the specification, were well known and that therefore the new matter objection should be withdrawn. This begs the question of whether the teachings were known to Applicants

and whether Applicants had intended to disclosure such teachings as of their filing date. Applicants should submit an affidavit in order to buttress their allegations.

44. Furthermore, this appears to be an apparent improper at attempt of incorporation by reference of essential matter after Applicant's filing date.

Response to Arguments – 112(1) Rejections (pp. 20-21; paper # 12)

45. Applicant's arguments filed 3/11/2004 have been fully considered but they are not persuasive.

46. Applicant's commentary is noted and is not persuasive. Applicants are directed to the precise wording of the rejections. Respectfully, Applicant's arguments do not advance prosecution. The rejections were put forth after a careful review of the claims and specification. The Examiner has an extensive background in simulation, as well as in analog and digital photography and, respectfully, appreciates the difference between digital simulation of a camera vs. simulation of a digital camera vs. a physical digital camera vs. simulation of a physical digital camera.

47. Applicant's arguments that lens parameters are part of a camera model is persuasive; however, lens parameters, for example, do not constitute a camera model in and of themself.

48. As per Applicant's allegation that they are not claiming a digital camera, the Examiner notes claim 35, for example. The preamble begins with "A method for simulating a digital camera...". That has a different meaning than digital simulation of a

camera. Applicants have not disclosed anything about a "physical" digital camera, much less simulation of a digital camera.

49. A persuasive response to a 112(1) rejection should include an indication of where the claimed material is supported in the specification.

***Response to Arguments – Claim Interpretation* (pp. 21-22; paper # 12)**

50. Applicant's arguments filed 3/11/2004 have been fully considered but they are not persuasive.

51. Again, Applicant's commentary is noted and is not persuasive, and respectfully, does not advance prosecution. Applicants are directed to the precise wording in the Office action. The interpretations were put forth after a careful review of the claims and specification. The Examiner has an extensive background in simulation, as well as in analog and digital photography and, respectfully, appreciates the difference between digital simulation of a camera vs. simulation of a digital camera vs. a physical digital camera vs. simulation of a physical digital camera.

52. Applicants have not persuasively advanced their own interpretation. The claim interpretations are maintained.

***Response to Arguments – 102 Rejections* (pp. 22-25; paper # 12)**

53. Applicant's arguments filed 3/11/2004 have been fully considered but they are not persuasive.

54. Subbarao discloses a camera simulation system and further discloses a method of determining the distance between a surface patch of a 3-D spatial scene and a camera system. The distance of the surface patch is determined on the basis of at least a pair of images, each image formed using a camera system with either a finite or infinitesimal change in the value of at least one camera parameter. A first and second image of the 3-D scene are formed using the camera system which is characterized by a first and second set of camera parameters, and a point spread function, respectively, where the first and second set of camera parameters have at least one dissimilar camera parameter value. A first and second subimage is selected from the first and second images so formed, where the subimages correspond to the surface patch of the 3-D scene, the distance from which to the camera system, is to be determined. On the basis of the first and second subimages, a first constraint is derived between the spread parameters of the point spread function which corresponds to the first and second subimages. On the basis of the values of the camera parameters, a second constraint is derived between the spread parameters of the point spread function which corresponds to the first and second subimages. Using the first and second constrainsts, the spread parameters are then determined. On the basis of at least one of the spread parameters and the first and second sets of camera parameters, the distance between the camera system and the surface patch in the 3-D scene is determined. Note fig. 1-7A and corresponding text.

55. Wheeler et al. disclose an exposure control apparatus, and various accompanying methods, for use in a photographic camera for improving the overall

quality of photographed images, i.e. increasing the number of acceptable and higher quality images, that are produced by the camera for user-selected non-standard display sizes and/or different focal length photographing modes over that obtainable by adherence to ISO/ANSI exposure standards. The quality improvement is attained through user selection of a desired display size and/or focal length photographing mode for each image to be captured followed by an optimization, for that size and mode, of various photographic exposure parameters (exposure settings and, where appropriate, flash parameters). The invention violates the ISO/ANSI exposure standards where necessary to improve image quality, for the desired display size and focal length photographing mode, beyond that which would result from adherence to these standards. See fig. 2-14.

56. Potmesil et al. disclose the traditional pin-hole camera projection geometry, used in computer graphics, to a ***more realistic camera model*** *which approximates the effects of a lens and an aperture function of an actual camera. This model allows the generation of synthetic images which have a depth of field, can be focused on an arbitrary plane, and also permits selective modeling of certain optical characteristics of a lens.* The model can be expanded to include motion blur and special effect filters. These capabilities provide additional tools for highlighting important areas of a scene and for portraying certain physical characteristics of an object in an image. See section 2 (camera model) and section 3 (synthetic image generation).

57. Rioux discloses simulating a photographic camera for rendering two-dimensional images of virtual three-dimensional objects enhances flexibility and ease of use of a

rendering system. Simulating a photographic camera is performed by determining light from virtual light sources that passes through a lens of the simulated photographic camera having an aperture, focus, and shutter speed and is incident upon the imaging plane within the camera. The method also has application in teaching photography because, in some instances, computer simulation reduces the cost of equipment and consumables. See fig. 2-5 and corresponding text.

58. Kolb et al. ('606) disclose a physical camera which is modeled to render an image in a computer graphics system. When given the manufacturer's specifications of the physical camera's lenses, including the dimensions and indices of refraction of its lenses, stops, and shutter characteristics, the location of the film surface relative to the lens system, and the orientation of the camera within the scene, the invention accurately and efficiently mimics the physical principles of image formation creating an image which approximates an image produced by the physical camera. The procedure comprises four main elements: (1) the geometric relationships between the lens system, object, and film plane are modeled by precise placement and movement of lens elements, (2) image geometry is computed by using principles of geometric optics, (3) an exit pupil is calculated in order to define a region for efficiently sampling rays, (4) the image irradiance, or exposure at a pixel, is computed according to radiometric principles. See fig. 1, 7 and corresponding text.

59. Wheeler discloses a camera system which incorporates an autofocus system of simple and inexpensive design that provides improved photospace coverage. The autofocus system utilizes both a measurement of the intensity level of ambient light and

a determination of whether the ambient light is natural or artificial to set lens focus position, aperture opening, shutter time and operation of a flash unit. See fig. 1-4.

60. Doron disclose a camera which powers up in a default fixed-focus mode and has a capability whereby the photographer can select an auto-focus mode. The camera includes a lens, a shutter and a motor for moving the lens and for opening the shutter. A CCD, electrically interconnected to an analog to digital signal converter, receives image data and transforms the data to analogs for transmission to the converter where a digital output signals is generated. The digital signal is electrically transmitted to a *processor* which is electrically connected to the motor. In the camera default fixed focus mode, a first control algorithm facilitates a process wherein the processor generates an electrical signal to cause the motor to move the lens directly to a control position. To elect the ***auto-focus mode*** of camera operation, the photographer depresses a button and thereby selects a process which functions in accordance with the steps of a second control algorithm wherein the processor generates an electrical signal to cause the motor to move the lens past a focal point, and a second signal to cause the lens to backstep to the focal point. When the auto mode is selected, an icon appears on a data liquid crystal display (LCD) to indicate that auto focus mode is selected. See figures 3-7.

61. Humphrey discloses a process and apparatus for the calibration of an optical instrument. An optical instrument--such as a lens meter or ophthalmometer--is provided with a light source, a light detector, and an optical train of assembled optical elements therebetween. A suspect optical element to be measured is placed within the optical train at a measuring interval to deflect light passing along the optical train. An occulting

moving boundary locus having at least two boundaries of differing shape, and a dedicated computer may be used to measure beam deflection. The dedicated computer also makes use of stored computer constants to transform raw measurements into the desired optical properties of the suspect optical element. The optical train of the instrument has its assembled optical elements randomly placed to production tolerances; precision registration of the optical elements to traditional close optical tolerances is omitted. Calibration occurs by manipulating the instrument's beam deflection apparatus under the control of a calibration program, by providing the optical instrument being calibrated with an umbilical cord which bypasses the central processing unit of the dedicated computer, but otherwise manipulates the entire optical instrument's beam deflection apparatus. This umbilical cord leads from a calibration computer, which substitutes central processing and contained memory as well as providing a supplemental program for the generation of customized computer constants. Customized computer constants are generated for each instrument by insertion of a series of test elements of known quantity into the samping interval of that instrument, and burned into a memory which is then placed into the dedicated computer of the instrument being calibrated. See col. 6, line 38 to col. 9, line 42.

62. Iwane discloses an automatic lensmeter for automatically measuring a lens characteristic of a lens to be tested, comprises: a measuring unit including an optical system for detecting a refraction characteristic of the lens; a calculation unit for calculating a lens characteristic value in accordance with information from the measurement unit; a display unit for displaying the lens characteristic value calculated

by the calculation unit; an actual eccentricity calculation unit for calculating an actual eccentricity based on the lens characteristic value calculated by the calculation unit; and an optical axis position determination unit for determining whether the actual eccentricity calculated by the actual eccentricity calculation unit is within a predetermined range or not to determine whether the measurement and/or the marking are permitted. The display unit displays the determination of the optical axis position determination unit. See fig. 1-3, 12-13 and corresponding text.

63. Aloni et al. disclose an inspection method including the steps of providing a patterned object to be inspected and compared with a reference, inspecting the patterned object and providing an output of information relating to the visual characteristics of the patterned object, and providing an output indication of differences between the patterned object and the reference, the step of providing including the steps of sensing hill profiles and valley profiles in information relating to the visual characteristics of the patterned object, sensing hill profiles and valley profiles in information relating to the visual characteristics of the reference and providing a defect indication when a hill profile or a valley profile of at least a sufficient level is sensed for a given location in the patterned object and not for a corresponding location in the reference. See fig. 1-5, 14.

64. Rushmeier et al. disclose comparison of real and synthetic images for use in calibration. See section 1.

Conclusion

65. The prior art made of record by Applicants and not relied upon is considered pertinent to applicant's disclosure. Applicants have submitted two Information Disclosure Statements. The references are cumulative to the extent that they are not cited in a rejection and are therefore not used:

- US Patents cited by Applicants in paper # 9:

2949836

3076396

3618499

4154517

4219261

4341451

4731864

4855782

5146261

5384615

5510875

5687409

5892991

6081670

- The nonpatent literature cited in paper # 10 (Applicant's 1449).

66. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 3/8/2004 and 3/11/2004 prompted

the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

67. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

68. Any inquiry concerning this communication or earlier communications from the examiner should be:

directed to: Dr. Hugh Jones telephone number (703) 305-0023, Monday-Thursday 0830 to 0700 ET, ***or*** the examiner's supervisor, Kevin Teska, telephone number (703) 305-9704. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to: Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to: (703) 308-9051 (for formal communications intended for entry) ***or***
(703) 308-1396 (for informal or draft communications, please label "*PROPOSED*" or "*DRAFT*").

Dr. Hugh Jones
Primary Patent Examiner
March 29, 2004

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